The MAC Flyer

APRIL 1976

Sunday Afternoon Cu. Page 3.

MILITARY AIRLIFT COMMAND
GEN PAUL K. CARLTON Commander
LT GEN JOHN F. GONGE Vice Commander
BRIG GEN EDWARD J. NASH Inspector General
COL EMERY J. CRANE Director of Safety

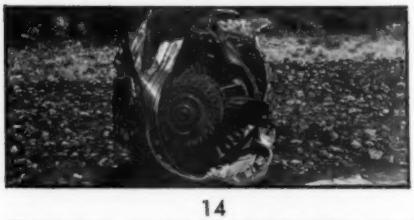
The MAC Flyer

For Greater Efficiency
in MAC Air Operations

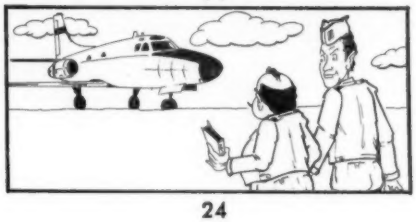
THE STAFF
LT COL JOHN W. RAY Supervising Editor
MAJ ORLEN L. BROWNFIELD Associate Editor
MAJ ALBERT R. BARBIN, JR. Associate Editor
ISOBEL M. BRYANT Managing Editor
MSGT WAYNE L. MILLS Contributing Artist

APRIL 1976 MACRP 127-5 VOL XXIII, NO. 4

8



14



24

Sunday Afternoon Cu 3
Accident Statistics for 1975 6
Tuning in the Awareness Frequency 8
AIREP's — How They Work for You 10
Good Show 13
What It Isn't 14
The ABC's of Safety Involvement 16
Mishap with a Moral 20
Latest FAA Innovations for Safety, Convenience 22
C. R. Terror 24
Global Notes 27
Quick Stoppers 28

The MAC Flyer is published by the Directorate of Safety, HQ MAC. The contents are informative and not regulatory or directive. All names in accident stories are fictitious and no information concerning aircraft accidents may be construed as incriminating under Article 31, UCMJ.
Contributions, comments, and criticisms are welcome. Write: The Editor, The MAC Flyer, MAC/IGFE, Scott AFB, IL 62225, or call: (618) 256-3534, Autovan 638-3534. The Editor reserves the right to change manuscripts to improve them or correct technical errors.
The magazine is available from: The Superintendent of Documents, Government Printing Office, Washington, DC 20402. Price 70 cents per copy, $7.90 per year ($9.90 foreign).
Distribution F, X; OPR MAC/IGFE.

I was cocky the first time they let me go it alone — until a fluffy line of cumulonimbus humbled me in a near disaster.

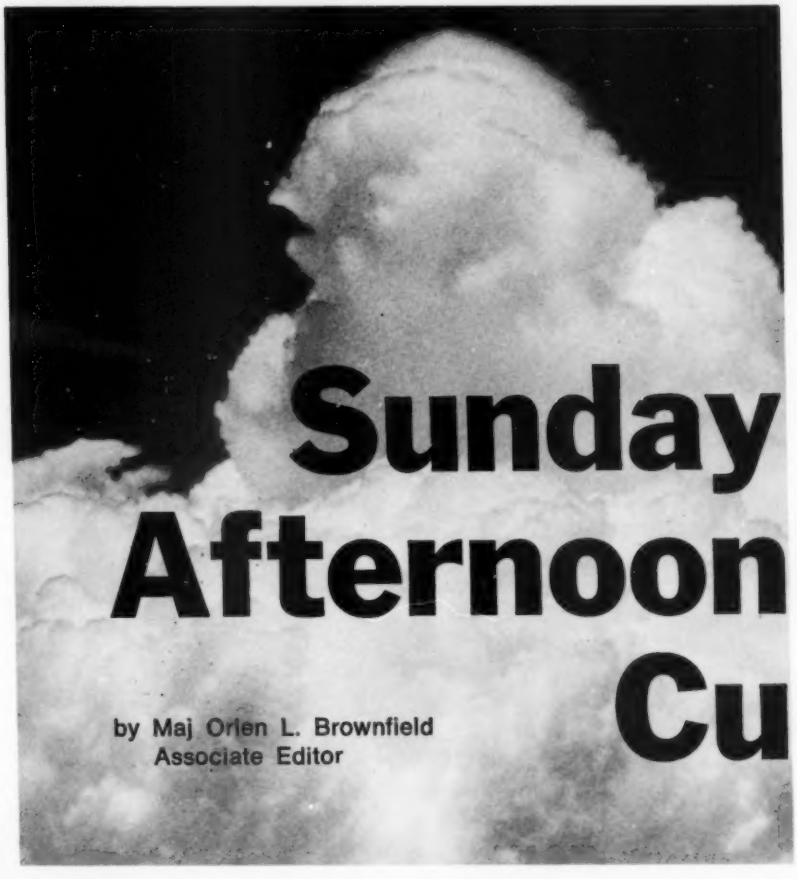
In the spring a young man's fancy very often turns to thoughts of — hail, thunder and lightning and, perhaps, Saint Elmo's Fire. Not to mention turbulence and wind shear.

And as we enter this thunderstorm season, virtually all of the flying safety magazines will issue warnings concerning the "evil" that lurks in the heart of cumulonimbus.

For many areas of the world, the thunderstorm season has already arrived, accompanied by the threat of battered radomes, airfoils, and even the decimation of entire airplanes and their occupants. In short, the threat of your falling victim to the ravages of summer weather is very real unless you're well versed on the subject and stand ready to pay proper respect to one of nature's most hazardous phenomena.

The fluffy cumulus on the horizon may add character to a Sunday afternoon sky and might even be conducive to a successful picnic; but once you depart terra firma, cumulonimbus becomes your most devious aeronautical adversary.

But rather than present a display of statistical data on what thunderstorms have wrought on aircraft over the past years, the editors decided to present the following tale, based on fact, of a single encounter with cumulonimbus and the effect it had on a young (at that time), newly upgraded navigator.



Sunday Afternoon Cu

by Maj Orien L. Brownfield
Associate Editor

I had three Atlantic crossings under my belt and the Navigator Hierarchy finally decided that I was good enough to go it alone. It felt good to be the one and only navigator on the crew as I checked in for my first "fully qualified" mission. It didn't matter that the trip was stateside and that it could have gone without me. It was a bench mark for me — all my former flying training classmates at Waco had checked out long ago. Today was my day.

The rest of the crew was mostly young guys like me, except for Rudy. He was a flight mech with beaucoup flying time. But anyhow, I felt comfortable with the crew.

After the briefing at the squadron, the pilots and I went over to base ops to file. I actually got the opportunity to prepare my first flight plan without someone looking over my shoulder. I gave the pilots lots of information that they didn't need: ETP (equal time point), PSR (point of safe

Sunday Afternoon Cu

return), and ETC (et cetera). Then we all went down to weather.

"Looks pretty good from here all the way to Texas," the forecaster told us. "You can expect some Sunday afternoon cu over Alabama."

I asked for a temperature deviation at 20,000. Seemed like an intelligent thing to do. I should have asked him what Sunday afternoon cu was.

It was August and it was hot. Charleston humidity seemed to stay at or near 100 percent all the time. But when Rudy got the turboprops on speed, the air conditioning began pumping cool air on the back of my neck.

I synchronized the compasses and turned on my radar and doppler. Just for kicks, I even turned on the loran.

The shiny new Hercules was empty, so our takeoff roll was short and we climbed through 1,000 feet before reaching the end of the runway. The radar was good — a beautiful picture of the Charleston peninsula and the Cooper River bridge.

As we turned to a westerly heading, the sun did its best to blind the pilots. But about the time we leveled off at FL 200 twilight captured us and we began to configure the C-130 for night flight. The lights went up, visors were stowed, and the loadmaster announced that he would "take a nap" in one of the litters in the cargo compartment.

I played busy, taking tacan fixes and studying land-water contrast on the APN 59. The pilot reminded me that it wasn't necessary to call in ETA revisions that were only a minute off. In those days, position reporting was required.

I had just stepped over to the galley for coffee, when Bill, the aircraft commander, called me.

"Say, Bud, there's the Sunday afternoon cu we heard about," he said. "I can see lightning flashes on the horizon — got anything on your scope?"

Sunday afternoon cu? It's Sunday evening now, I thought. But I'd take a look just the same. I sat down and selected pencil beam and 240 mile range on my control panel. Sure enough, I was painting faint echoes at about 200 miles.

"Pilot, Navigator, over." I was very formal in those days. "I am painting some garbage way out there. I'll keep you posted."

"Okay."

At first I didn't think much about those returns, so faint and so scattered. But as we got closer, it seemed like the number grew and the scope returns became brighter.

About 50 miles out, the returns were becoming more intense, and I thought maybe a change of heading was in order. Not because we were heading for any particular thunderstorm, but simply because I hadn't given any heading changes!

Ten degrees left, then ten degrees right.

And then finally, in my most confident voice, "Okay, Skipper, we're gonna have to bust through here somewhere. I think I maneuvered us into a horseshoe of thunderstorms."

"Okay, pick a spot that looks least likely to rattle us around and give me a heading," he said. "Let's get everyone secured. Hey, Loadmaster, looks like it might get a little rough. You got everything tied down?"

"That's a Roger, Sir," the load responded. "Only got a couple boxes back here."

"Good. Heading, navigator?" Bill asked.

"It looks softest about 15 degrees right. We should hit it in about four miles," I said. And Bill was turning the aircraft before I had finished.

"Rudy, give me a good thunderstorm penetration airspeed," Bill ordered.

"Don, get the thunderstorm lights — I'm hand flying it now. We'll just try to keep the wings level."

My APN 59 didn't have "Iso-Echo" function and the presentation on the scope was just soft cottony returns. It didn't look too bad.

Bill had reduced the airspeed and all was bright in the cockpit as we entered a realm of light turbulence. My baptism. It was going to be a piece of cake.

"Just a couple more miles and we'll be out . . ."

My voice rose an octave or so as we hit a severe downdraft. I had been concentrating so much on those scope returns that I hadn't fastened my seat belt. As I came floating up out of the seat, I reached with one hand under the desk and tried to hold myself in position. This had to be it. I kept thinking about that thunder-

The fluffy cumulus on the horizon adds character and dimension to an afternoon sky.

storm poster in the squadron depicting a disintegrating aircraft with the caption "Thunderstorms Destroy!"

I looked around the cockpit from my floating vantage. Don was restraining his flight bag which had risen about three feet from the cockpit floor, spewing out manuals, paper, and flight lunch leftovers. The flight mech was trying to retrieve his flashlight which rested momentarily on the ceiling of the aircraft. My freshly drawn half cup of coffee was washing down the loran set. I should have listened to my mother. "Stay away from airplanes," she would say. "You know that's what killed your Uncle Richard." She was right. And now it was my turn.

But just as suddenly as the towering nymphocumulus had grabbed us, it spit us out like a watermelon seed. There were stars above and city lights below.

Nobody said anything for awhile, and then Bill surveyed the cockpit. "Christ! Maybe we'd better have a damage report." But he was smiling, apparently as happy as I was to have the foul weather behind us.

"Damn, Pilot. I thought you said it might be a *little* rough." It was the loadmaster. "You ought to see this cargo compartment."

I got up and walked over to the galley floor to get a full view of it. The cabin was strewn with toilet paper, first aid kits, and tie-down straps. It reminded me of Times Square after a New Years Eve bash. The loadmaster sheepishly admitted that he hadn't even bothered to get out of the litter. When we hit the downdraft, the litter had pinned him against the wall and ceiling of the cargo compartment. But it also protected him from flying objects.

I finally got my voice back, "Man, that was really something. What's your G-meter read?" I asked the aircraft commander.

He glanced down and muttered, "One and a half, negative." And quickly punched it off as though that would wipe the experience from our memories.

Wow, one and a half — negative! In the back of my mind I knew that we had exceeded the limit, and I got out my Dash One. Yup, the envelope was a plus two and one half to minus one G.

I casually moved up behind the copilot and looked at the right wing. It didn't look bent. I couldn't see any cracks in it. I breathed more easily.

Shouldn't we write it up? I mean after all, we had exceeded design structural limitations. "Not necessarily," the flight mech said, "we were very light." And, of course, there's a safety margin in those Dash One figures. Had we been heavy it might have been a different story.

* * *

That was 1963 and through the years and several thousand flying hours, I learned my lines well. "Pilot, I'm painting some Sunday afternoon cu out there at twelve o'clock. I'd like to give them a wide berth if you don't mind," I say. "I had a bad experience once."

Accident Statistics

The Military Airlift Command major aircraft accident rate for 1975 was the lowest since 1972.

While the number of MAC accidents remained the same as in 1974 (seven), flying time increased considerably and accounted for the improved rate. MAC flew 706,707 hours in 1975, compared to 491,308 hours in 1974. The minor accident rate was as good as it can get — zero.

Accident rates (per 100,000 flying hours) are:

Major	1973	1974	1975
MAC	1.0	1.4	1.0
USAF	2.4	2.9	2.8
Minor			
MAC	0.5	0.2	0.0
USAF	1.0	0.9	0.7

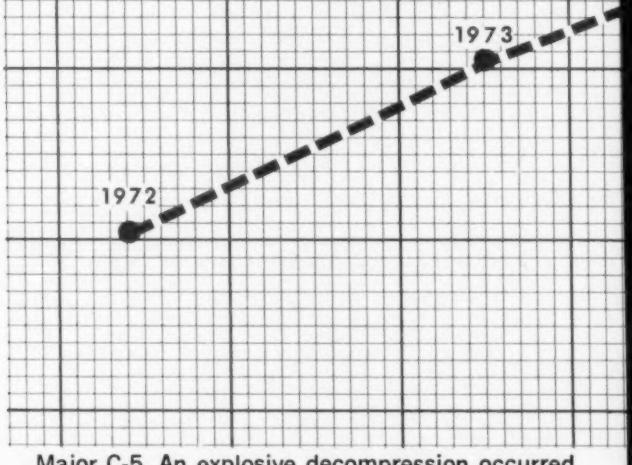
The following compares the 1975 major accident rate by command:

AAC	0.0
ADC	5.3
ATC	0.4
MAC	1.0
SAC	1.0
TAC	6.1
PACAF	5.7
USAFE	5.1

MAC's 1975 Accidents

Major UH-1F. The helicopter crashed during a steep approach on a functional check flight. The pilot suffered second and third degree burns to his face and upper body.

Major C-141. The aircraft descended below terrain clearance altitude and impacted a mountain at 7,150 feet MSL. There were no survivors.



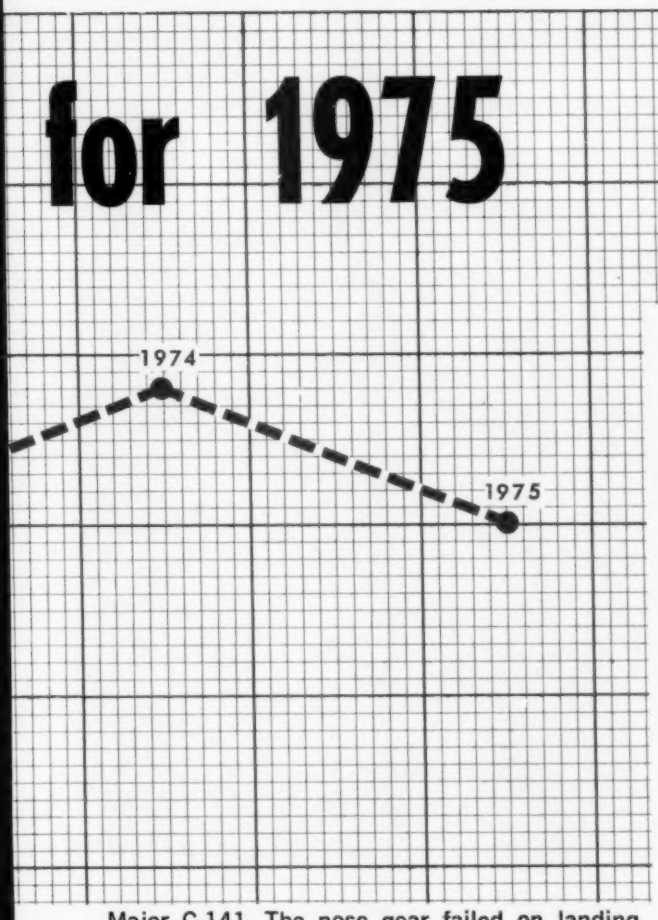
Major C-5. An explosive decompression occurred on climbout from Tan Son Nhut. The aft ramp and pressure door separated, rupturing hydraulic lines and severing control cables. The aircraft crashed while attempting an emergency landing. Eleven crew members and 127 passengers were killed.

Major C-141. The left main gear collapsed as the aircraft taxied out for departure. The crew of eight and 52 passengers egressed without difficulty or injury.

Major C-141. Number three engine failed after takeoff, causing loss of the engine cowling. Metal fragments penetrated the fuselage, wing fuel tank, flaps, and number four engine. There were no injuries.

for 1975

by Maj Russell L. Cayler
MAC/IGFF
Scott AFB, Ill.



Major C-141. The nose gear failed on landing. Damage to the fuselage resulted as the aircraft settled onto the runway. No injuries.

Major CH-3E. A malfunctioning rotor brake ignited just prior to takeoff. The crew fought the spreading fire until a fire truck arrived. The crew and passenger egressed without problem.

MAC-GAINED AFRES/ANG ACCIDENTS

The following MAC-gained AFRES/ANG accidents are not included in the MAC accident rate:

Major C-130B. Following a GCA on a local training mission, the aircraft veered left on the runway, became airborne, and departed the left side of the runway 5,000 feet from the approach end. Two of six crew members were fatally injured.

Minor C-123K. While climbing to a wide downwind for landing, the aircraft flew through a flock of turkey vultures. In spite of evasive maneuvers, multiple bird strikes damaged the nose section.

Major C-130A. The aircraft crashed during a low level airdrop mission. After level-off, number three exploded, the prop separated, and an engine fire resulted. Subsequently, the number two engine power decayed as a result of damage from number three engine debris. The number four engine then failed forcing an attempted emergency landing. The right wing contacted trees, the aircraft cartwheeled and burst into flames. All six crew members were fatally injured.

Major C-130B. On landing the left main gear collapsed. As a result, the left wing dropped, allowing the number one propeller to contact the runway. There were no injuries.

Minor C-130B. While holding on a runup pad prior to takeoff, the aircraft developed a fire in the left wheel well. The crew egressed successfully after shutting down the aircraft. The fire department extinguished the fire.

While the accident rate improved this year, the seven major aircraft accidents are anything but insignificant. Material failures have been the major problem and are likely to continue to plague MAC's force. A great deal of effort is being expended to correct material deficiencies, but the watchwords for crew members continue to be standardization and proficiency. Know your emergency procedures and be constantly ready to cope with an emergency situation. Professional performance is your best insurance for a safe flight.

When a crew member feels he's not part of the "action" or that he must jealously defend his right to privacy, he may not be . . .

Tuning in the Awareness Frequency

by 1st Lt Alfred Nickerson
71 ARRS
Elmendorf AFB, Alaska

You're cruising along at flight level 230, well into a tiring day, when the loadmaster, who happens to be taking a break on the flight deck, interrupts your approach briefing with a, "Hey, pilot, what's our altitude supposed to be?"

As the aircraft commander, how would that grab you? Would you tell the sergeant to mind his own business and return to his own crew station? Or would you remind him that, based on your several thousand hours of flying

time, you feel perfectly capable of maintaining your assigned altitude, thank you? Or, could you accept the question as reasonable and proceed to check it out?

An incident such as this actually occurred not too long ago — much to the embarrassment of the two pilots and their navigator. The loadmaster, who was aware of the planned altitude and was far from being ignorant on the importance of complying with a clearance, pointed out that the aircraft was cruising 1,000 feet lower than its assigned altitude. The pilots quickly made up the difference. A good thing, too. Less than two minutes later another aircraft, flying the opposite direction, passed 1,000 feet beneath them. Simply an alert loadmaster who happened to be at the right place at the right time? Or an example of crew coordination?

One spinoff of aircrew discipline is crew coordination. Less interphone chatter, better radio communication procedure, and accuracy in checklist responses are all indications of crew coordination. But there's a lot more to crew coordination than that. Even a crew that runs its checklist with precision and seems to be the epitome of coordination may be missing a vital element of the truly coordinated crew. What is this element? It's crew member awareness.

A crew member's awareness can be dulled in several ways. One is by the crew member himself. He may have personal problems that sap his attention or divert it from all but his most basic duties. Or the aircraft commander or other members of the crew may have discouraged his curiosity and interest toward the duties of other crew members. It's up to his aircraft commander, and to some degree his other crew mates, to keep him "tuned in" with them. In any event, if he's not tuned in, look out. Your crew has just lost some of its ability to detect and head off problems.

The aircraft commander who really leads his crew will cause each crew member to feel that he is an important part of the action. It is surprisingly easy to squelch a crew member's enthusiasm by "isolating" him exclusively within his own position in the aircraft. An attitude such as, "I'm just the radio operator so why should I risk catching hell by pointing out that the boss has got the wrong tacan tuned," could spoil a crew's whole day. And it says a lot about the aircraft commander.

Aircrew members, and pilots in particular, are often defensively jealous concerning their talents and crew positions. They may resent any implication that they have made an error. This is not an unnatural attitude, but taken to the extreme, it can be dangerous. Let's face it, even crew members with years of experience occasionally make mistakes. For example, a navigator with a great deal of experience but new to his squadron had a flight two miles off course when a pararescueman aboard the aircraft, noting the terrain beneath them, tactfully pointed out the error. The PJ had been flying over the same route for several years and knew most of the landmarks. The navigator corrected the error. No problem in this case. The PJ had maintained an awareness and by doing so assisted the navigator — who was smart enough to take a good tip. Crew coordination? Yes, we would have to call it that.

You can no doubt think of numerous instances in which a crew member whose duties did not necessarily relate to the problem at hand played a great part in either solving the problem or reducing its intensity — a flight engineer who reported an oncoming aircraft that no one else saw, a navigator who reported an open door on the life raft compartment while using his sextant. That they report their information without hesitation indicates they are, indeed, aware.

This type of crew coordination is what many of us have become accustomed to but may not always experience. And its absence can prove costly. Remember, in spite of the numerous jokes that we thrust upon our crew counterparts, the fact remains that each one is an intelligent person or he wouldn't be a crew member to begin with.

It behooves a crew, and aircraft commanders in particular, to create an atmosphere in which each member feels comfortable and won't hesitate to point out what he believes is a hazard. After all, as a crew, we're all flying in the same sky and on the same airplane, at the same time.

AIREP's

Don't blame the computer for your busted flight plan. It may have been caused by some of your buddies about six hours down the road.

"Hey, Boss, looks like Metro blew it again."

". . . Roger, command post. Wind factor: minus 21 at flight level 350; forecast: plus 17 — Metro blew it again."

How often have you heard of, or been a part of a MAC crew that has experienced displeasure with a flight plan that wasn't quite "as advertised? " It does happen.

But why? Let's pick the brain of this complaining navigator and see if we all can't learn something.

Okay, Nav. What do you mean, Metro blew it?

"It's just amazing to me that we spend all this dough for satellites and exotic forecasting junk and still those fortune tellers can't get a wind in the ball park."

I see. Do they really miss that many?

"Sometimes they're pretty close on the wind factor, but even then the direction's all screwed up. I mean these guys all got master's degrees and PME up through Divine Rod & Staff College. They should be able to do better!"

You know, it's a two-way street. What do you do to help out?

"Who, me?"

Yup, as navigators and pilots you should be acutely aware of the importance of getting your observed in-flight data to the experts.

"Well, yeah, sure — I know that."

But then, why didn't your co-pilot transmit AIREP info at your last two positions?

"C'mon, man, they were just short legs. Besides, I had better things to do."

Yeah, and at Yokota you didn't even turn in an AIREP form.

"I suppose that's a capital offense, huh? Those Metro guys ought to try a 16-hour crew duty day. Maybe they'd understand why I omit the unimportant stuff."

Unimportant? You missed your wind factor by 38 knots and that's unimportant?

"Not that. That's important — I burned all my ten percent reserve getting here. And besides,

How They Work for You

I didn't miss the wind factor — Metro did."

But you helped. Did you ever see an HWD? That's a Horizontal Weather Depiction . . .

"I know what an HWD is; you don't have to . . ."

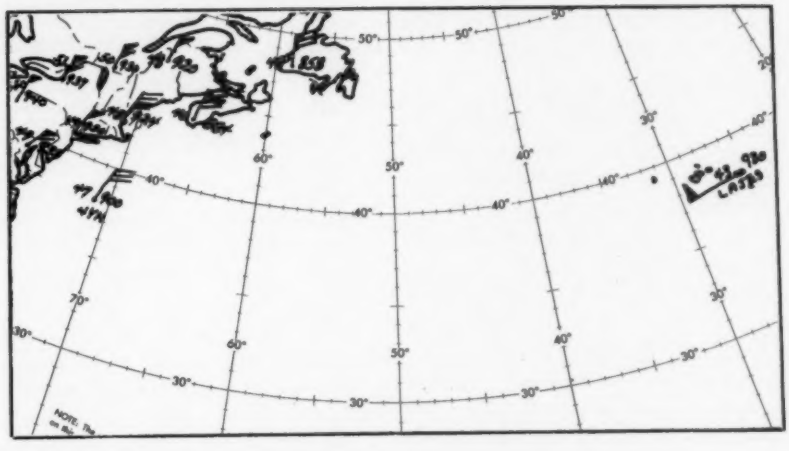
Did you ever see one without AIREP and PIREP information on it? Take a look.

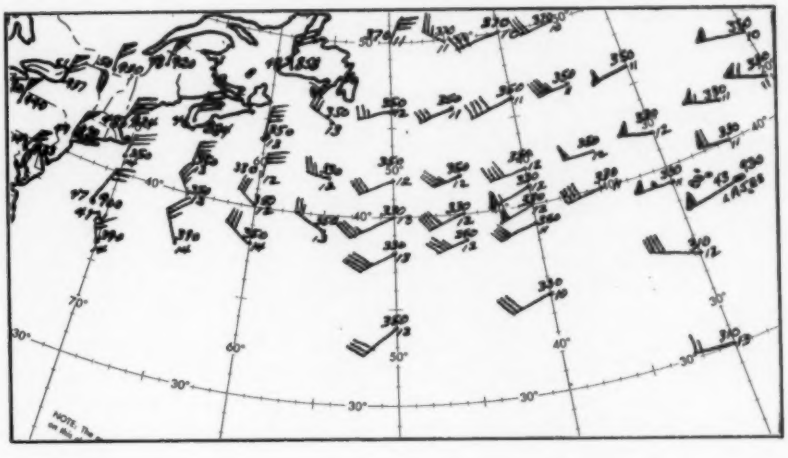
"It's kind of blank, isn't it?"

Right. And if you aviators didn't relay AIREP's and PIREP's, that's about what you'd get.

"That wouldn't be much help."

Uh huh, now take a look at the same chart with all the valuable goodies you and your colleagues provide.





"You get all that extra stuff from AIREP's? Wow!"

AIREP's *and* PIREP's. Now that I have your attention, let me tell you what else your friendly fortune teller does with your in-flight data.

Once you get all the "hot" information recorded and your buddy transmits it, you become part of a world-wide meteorological net. Mother MAC's Air Force Global Weather Central (AFGWC) at Offutt is a locus for many met reports: AIREP's and PIREP's from all types of aircraft.

AFGWC has the world's largest aircraft report data base; the inputs amount to several thousand per day. The net is pretty efficient too; within minutes of your transmission, the information is in the hands of AFGWC soothsayers. MAC's numbered air forces also receive these reports for flight-following Met watch information.

"That's neat. But what good does it do me when I'm airborne, heading this mega-buck machine from Point A to Point B?"

You know, your many journeys across the pond would be a lot less hectic and nerve-racking if the weather forecast holds up and your computer flight plan

AIREP's — How They Work for You

(CFP) is on the money. And AFGWC needs your help.

The Bellevue, Nebraska, boys use in-flight AIREP's and PIREP's as source data in two ways. First, they are collected and stored in the computer, becoming essential data for the computer's analysis of winds and temperatures every six hours. The result: current forecast winds and temperatures for aircrews throughout the world. Backing up the electronic marvel, Central has crack meteorologists on duty 24 hours a day, to look at the computer's data core and diagnose and correct any mistakes. Your current AIREP can help them do this.

The second use of in-flight reports comes a little closer to home for you aviators. It involves computer flight planning. Forecasters on duty at 21 AF, 22 AF, and AFGWC are constantly comparing new AIREP's and PIREP's with the winds that MAC aircraft will use when departing worldwide terminals in the next four to twelve hours. They compare the forecast winds with new AIREP's and PIREP's and look for areas where the forecast may be going sour. When an area is discovered, the wind monitor sends the computer a message to bring the forecast winds closer to reality. The computer resolves the changes and updates CFP's to reflect the manually adjusted winds. If you're using AFGWC computer flight plans, be sure you've got the latest edition — there's no percentage in using an old one.

"Sounds like the Met people got it all figured out. But then with all that talent, like I say, how come you can't do better?"

Well, there are a couple of reasons for that. First, when you're dealing with the complex variabilities of nature, there are always a few little "details" the computer can't catch.

One squirrelly detail that causes trouble is the exact location of the jet stream. The computer looks at what's happening only at fixed points 200 miles apart. When your route of flight lies parallel to a jet core (normally 50 to 100 miles wide and five to ten thousand feet thick, oscillating randomly at 20 to 30 knots), it's a real challenge for the computer. It's quite an accomplishment, particularly during the winter months, to get 95 percent of the computer flight plan winds within 25 knots for high altitude flights and 15 knots for low altitude. Even this would be impossible if it weren't for aerial inputs, such as AIREP's and PIREP's. Which brings up the second problem.

"The navigator, huh?"

Navigators *and* pilots. By using your alternate method of turning in the completed MAC Form 193 (AIREP) to the base weather station *after* your mission is completed, in lieu of air to ground transmission, you folks deny the data hungry AFGWC computer of timely, important weather information. Even though delayed AIREP's and PIREP's are better than none at all, "real time" data is paramount, especially in sparse traffic areas. On-the-spot reports allow CFP's to be corrected and subsequent MAC flights to reap the benefits.

And the completed line three on your AM-2 arrival message also assures that your actual wind factor is immediately available to forecasters and wind monitors. Get the idea?

"I guess I didn't realize where I fit in. Sorry 'bout that."

Just remember, AIREP's and PIREP's are like money in the bank; the more you put in, the greater your return — in the form of better weather forecasts and increasingly accurate computer flight plans.

"Rog!"

— Adapted from an article by
Lt Col Robert F. Woodall 21AF DOW

Captain Norman W. Raines

GOOD SHOW

Capt Norman W. Raines of the 75 MAS was the aircraft commander of a C-5 en route from Travis AFB to McClellan AFB, Calif. After takeoff, the copilot attempted to level the aircraft for a SID altitude restriction but discovered that extreme forward pressure on the control column was necessary to attain level flight. Captain Raines assumed control and together both pilots exerted enough forward pressure to level the aircraft. Initial troubleshooting revealed that excessive force was required to displace the yoke forward of neutral but aft pressure and movements were normal. The aircraft could fly straight and level with the autopilot engaged, but when it was disengaged, the aircraft pitched up in excess of 2,000 feet per minute. Without Dash One guidance and emergency procedures specifically addressing this unusual problem, Captain Raines initiated "conference" calls to MAC headquarters and Lockheed Aircraft Corporation representatives. Subsequent efforts to free the pitch control by isolating flight control components proved unsuccessful, and the source of the heavy pressures could not be traced.

Following further guidance from MAC and Lockheed, Captain Raines experimented with a series of aircraft controllability checks at 10,000 feet with the aircraft in various configurations. He determined that a straight-in approach could be safely accomplished by relying principally upon partial flaps, power, and trim control to minimize control column displacement.

As he prepared the aircraft for an approach, gusting crosswinds were reported at Travis. So, instead of landing at home station, Captain Raines elected to land at McClellan AFB where winds were more favorably aligned with the runway. He completed the approach and landing without incident. A subsequent investigation revealed that a gear in the elevator control cable tension regulator had broken and caused the elevator control cable to drag.

Captain Raines' analysis of this critical problem, excellent judgment in dealing with it, and skillful handling of his aircraft prevented a possible aircraft accident and injury to his crew. Good Show, Captain Raines.

What is cockpit discipline? We know it includes the little things such as awareness, attentiveness, and order. But some flight crews seem bent on finding out the hard way . . .

What It Isn't

by Maj Albert R. Barbin, Jr.
Associate Editor

Much has been written about the meaning of discipline as it pertains to the serious business of safely operating airborne machinery. But much of the often used rhetoric, high powered verbiage, and lengthy analysis has yet to corral this elusive and difficult-to-define term. And no further attempt is going to be made here. Such a commodity is as necessary to flight as fuel in the tanks, generators on the line, and crew members at their positions. So instead of dwelling upon what discipline is or should be, we'll use a different approach to spark aircrew introspection into the meaning of discipline.

Here are five accident summaries, three commercial and two military, in which flight deck discipline momentarily lapsed and disaster followed. Each error began during a different phase of flight — one on the ground, one during departure, one during en route descent, one after handoff to approach control, and the last during the approach. The accidents should never have happened, but they did — and they vividly illustrate exactly what cockpit discipline IS NOT.

On the Ground

Preparing their airliner for departure, the captain and first officer responded to a series of pretakeoff checklist challenges voiced by the second officer. But the litany of challenge and response concealed a fatal error.

When the second officer announced, "Pitot heat," the first officer reached overhead and responded "Off then on." But the pitot heat switch remained off. Apparently neither crew member took time to visually check the switch position.

The aircraft climbed steadily through areas of icing and turbulence. As the pitot heads and drain holes iced up, the aircraft's airspeed indicators began an insidious deviation on the high side. Thinking turbulence or a weather phenomenon was responsible for the abnormally high airspeed, the pilot counteracted with increased pitch. The aircraft stalled and quickly wound itself into a tight spiral. Recovery attempts were futile as excessive G-loads ripped the horizontal stabilizer off. The airliner crashed in a wooded area, killing its three-man crew.

After Takeoff

The crew of a chartered twin-engine airliner radioed the local Flight Service Station that they were climbing VFR and standing by for an IFR clearance. The FSS specialist heard the call but his repeated attempts to raise the aircraft and transmit the IFR clearance were unsuccessful.

The prescribed IFR departure at the airport requires a climb to 8,000 feet within two miles of the airport prior to airway transition, but the aircraft continued its VFR climb into a clear but moonless sky. The blackness was suddenly illuminated by a burst of flame as the aircraft slammed into a 6,280-foot mountain.

Although skies were clear, an almost complete absence of light virtually eliminated the contrast between the terrain and the sky. Investigators could not conclusively pinpoint the cause of this crash that claimed 40 lives but considered the possibility that "clear skies" may have caused complacency and distraction that diminished the crew's awareness of mountainous terrain.

En Route Descent

Less than a half hour from touchdown, the C-141 banked toward the southeast and descended to 17,000 feet. Several radar controllers guided the C-141 toward its destination as the crew awaited clearance to a lower altitude.

Confusing a Navy fighter with the C-141, the radar controller cleared the 141 out of 10,000 feet for 5,000 feet. The 141 crew acknowledged, "Five thousand. Out of ten." That was the last transmission from the aircraft. The wreckage was spotted later just above the 7,000-foot level in a rugged mountainous area northwest of the base.

No one will ever know for sure why the crew overlooked such hazardous terrain before or during the descent — but they did.

Vector to ILS Final

As the aircraft commander initiated the descent checklist, center directed the flight to descend to 6,000 feet and to contact approach control. But the two pilots had difficulty contacting approach control. When they finally did establish contact, the controller issued approach clearance to 5,000 feet. But another aircraft transmission blocked out part of the clearance. The crew, unsure of the assigned altitude, agreed that it sounded like three thousand feet. The AC acknowledged 3,000 feet, apparently assuming approach control would confirm or correct clearance. Although there was no response, the flight continued its descent. Noting a mountain peak on his chart well above 3,000 feet, the navigator cautioned the pilots. Glancing out through blackened windows, the AC reminded the navigator that they were in night VFR conditions and not to worry.

Suddenly, the screech of tearing metal exploded along with sounds of disintegrating turbofan engines and fuel tanks as the aircraft ripped across a rocky plateau, flipped over and burned.

On Final

For several minutes prior to interception of the VOR final approach course, the captain and first officer discussed a variety of subjects. Even after intercepting the final approach course, the two-man crew continued a conversation unrelated to the operation of the aircraft.

During their discussion, considerable attention was directed outside the cockpit. Neither pilot detected that the aircraft had descended through the final approach fix altitude, well short of the fix. Less than a half minute later the aircraft's terrain alert warning system sounded, indicating less than 1,000 feet above ground. But descent continued and the aircraft crossed the final approach fix 450 feet below the minimum final approach fix altitude. The descent continued to 500 feet above field elevation. No altitude callout was made. As its crew groped for the runway in low lying fog and thin obscuration, the aircraft crashed more than three miles from the airport.

* * * * *

Laxity, complacency, overconfidence, and error are all solvents of discipline. Even a brief exposure to these elements can precipitate a sequence of events that leaves no room for recovery.

The ABC's of Sa

A successful safety effort doesn't just happen. A care

Honorab
1975 MAC Flying S

The cornerstone of flying safety awareness and education within an organization is the flying safety officer. And no one knows this better than he. But, in your unit, does he come across as the lone preacher attempting to pry the populace from a den of iniquity? Hopefully not, because commanders, middle managers, and supervisors right down to the basic crew members have a heavy hand in it too. They can set the tone and cultivate safe (or unsafe) attitudes within their squadrons, flights, and aircraft. Without 100 percent involvement from 100 percent of the troops, efforts to promote further safety enlightenment may go the route of an evangelist's unheeded gospel.

Maintaining a safe operation is relatively easy if everyone does his part, but it may pose an insurmountable obstacle unless everyone knows how to apply the simple ABC's.

A is for ATTITUDE. One of the most important keys to anyone's success, regardless of profession. A positive attitude, not a "maybe" or negative one, belongs on the flight deck. Crews that consistently breathe safety into their flight operations will invariably come out ahead of their contemporaries. The right attitude is "I know I can," not "I think I can."

B is for BASICS. The very foundation of skilled proficiency; the ground work must be well established to achieve "pro" status. Whenever you're in a tough spot, or have difficulty making a decision, always go back to the basics. School yourself in fundamentals; encourage others to do the same.

C is for COMMUNICATION. Have you spotted a hazard? Don't keep it to yourself. Tell the boss . . . see your safety officer . . . take a crack at authoring your very own hazard report. Moreover, it's amazing what a supervisor can learn from a bit of informal conversation. It may provide the first clue to a breach of air discipline or common sense safety rule. Remember that communicating means listening as well as speaking.

D is for DEDICATION. Everyone should devote full measure to improving the manner in which responsibilities are carried out and the job accomplished. And your interest in recognizing dedicated efforts will go a long way toward encouraging loyalty and motivation.

E is for ENTHUSIASM. Difficult for many people, leaders included; but without it an individual

fety Involvement

ful blending of planning and action is essential.

le Mention
afety Writing Contest

by Lt Col Jay M. Strayer
1550 ATTW
Kirtland AFB, N. M.

can fall into a rut that smacks of "routine" — the kiss of death for anyone. A successful individual exudes excitement about his job. If he's not interested, those who work with or for him won't be either. Routine breeds complacency, the documented cause of many accidents.

F is for FLEXIBILITY. All of us must be able to adapt to changing conditions, new weapons systems, or suggestions that will enhance safety. Don't be so regimented that you're immune to change, for change is what keeps complacency at a distance. Flexibility is truly a must.

G is for your GOAL. Regardless of your crew position or the operation you manage, you must establish tough-to-reach goals — not so unrealistic you can never attain them, but something that you can strive for. Select a mountain with a view that makes the climb worthwhile. Simply drifting along doesn't cut it.

H is for HUMOR. An important ingredient in anyone's makeup. If you're the boss, understand that continuous "brow beating" will only lead to counterproductivity. A smile is a commodity that everyone can share on equal terms. Besides, a laugh now and then reduces strain and could well eliminate a costly mistake because of undue pressure. Humor may also prevent ulcers.

I is for INDIVIDUALITY. You learn on your own initiative. Find out how you function best and work hard at it. Have an idea? Try it! Someone certified your position because he thought you could indeed hack it and initiate new, fresh ideas. Performing safely is a tough challenge but there are those who still come up with new twists that decrease accident potential.

J is for JUDGMENT. Some have it; some don't. Best find out how you stack up early because poor judgment is the shortcoming of many that end up as accident statistics. Just how much risk are you willing to accept to get more realistic training out of a particular flying maneuver? Ever press minimums; succumb to get-home-itis? An error in judgment can cost equipment, morale, confidence, and lives.

The ABC's of Safety Involvement

K is for KNOWLEDGE. There is no substitute for knowing everyone's responsibility like it was your very own. Much study is required to stay on top. A loser accumulates bits of knowledge and thinks he knows it all while the winner keeps learning something new at every opportunity and applies this knowledge. Learning never ends. The sooner you "learn" this philosophy the sooner you will enjoy the rewards of an accident-free operation through your own success.

L is for LESSONS LEARNED. Read those incident and accident reports. Accident results and EUMR's can prevent reoccurrences. There is nothing more embarrassing than learning that you made the same costly mistake that another unit made. Surely you are wise enough to benefit from the errors of others — or are you?

M is for MANAGEMENT. Whether you are a "chief" or "indian," it is the act or art of handling, directing, controlling resources. It's careful, tactful treatment of people — perhaps executive ability, hard work, and attention to the job. For some, it's a 24-hour per day affair.

N means don't be NEGLECTFUL. After discovering a safety hazard, breach of air discipline, or other problem, jump on it! Take immediate action to solve it, change it, or fix it. Get professional help for it, replace it, even "fire" it if necessary — but don't wait. Do it now!

O is for OBSERVATION. What do you see? What's going on about you? Know something about every crew member's job. As a supervisor, have you ever come out on a weekend to see what is going on? Ever sit in on a crew briefing conducted after normal duty hours? One of the main ingredients of a successful professional is the ability to observe and put what he sees to use for his benefit; safety enhancement is an assured by-product.

P is for PREPAREDNESS. Can you withstand the assault of a no-notice MSET, ASET, or IG team? If so, chances are that your safety program is working. Such teams have a single goal in mind: maximizing Uncle Sam's resources but not at the expense of lives or equipment. Preparedness is synonomous with persistence. Keep at it till it is right.

Q is for asking QUESTIONS. Progress, skill, and understanding are impossible without a questioning attitude. Ask and you shall reap many benefits from extra knowledge. The most dependable crew member is likely to be the most knowledgeable one — and the one who questions.

R is for RULES. In any profession, order is achieved through rules. Know them and ensure everyone about you knows them. Rules sometimes change, and unless you know what's going on, you may be operating under yesterday's rules today. Don't let "He didn't know the rules" be your epitaph.

S is for STANDARDIZATION. MAC crews must operate on the same wavelength — no disputing it. People fly more safely, drive more safely — in a standardized operation. Standardization is the keystone of a safe flying program.

T is for TRAINING. No one can do the job safely without training. It sharpens our reflexes, expands our knowledge, tones our mental muscles for the tasks at hand. Practice leads to refined skills and professionalism.

U is for being UNDAUNTED by mistakes. Most crawl before walking and walk before running. Learning is a result of our mistakes. Everyone makes them. Remember, however, that while small mistakes are forgivable, the same ones repeated are not. I did say small ones; one big one or a combination of little ones can get you or your crew killed.

V is for VERSATILITY. A trait most people have but, unfortunately, don't use. There is more to a successful flying operation than the mere participation in flying. Successful individuals do many things. They continually show interest and assist behind the scenes, working so that the job gets done better and safer.

W is for plain, ordinary WORK. Believe in it, accept it. There is no replacement for it. It's the only solid way of getting ahead and staying there. A successful outfit is a safe outfit — one in which its members work hard.

X means eliminate XENOPHOBIA. The fear of anything that is strange or foreign. Don't hesitate to try something new, whether it's equipment or an innovative idea — especially if it makes your operation safer and more effective. A turtle never gets anywhere without first sticking his neck out.

Y is for YOURSELF. It is a truly wise person who knows himself, particularly in the flying business. One must not only know his own capabilities but the limitations of those around him. There is a vast difference between trying, being aggressive, and being reckless. Don't fool yourself through shortcuts. Control yourself and you control your crews and machines.

Z is for ZEALOUSNESS. Show your eagerness as you prove yourself in a professional role. Work your way into a leadership position; it can be a very rewarding affair. Tackle it without hesitation. The framework of an accident-free safety program is built upon the foundation of professional leadership.

The success of any safety program can be gauged by the application of these ABC's. Remember, you get what you demand — or tolerate.

ABOUT THE AUTHOR

Colonel Strayer began his Air Force career following commissioning and graduation from Ohio State University in 1956. After receiving his wings in 1957, he entered helicopter training at Randolph AFB, Texas. Throughout most of his career since then, he has been associated with helicopter operations. Colonel Strayer has flown H-3's, H-19's, H-21's, HH-43's, and HH-53's and has served in Germany, Turkey, and Thailand. He has commanded two ARRS detachments, was assigned to the ARRS Inspector General's Office, commanded the 1551st Flying Training Squadron at Hill AFB, Utah, and is currently the Assistant DCS Operations of the 1550 ATTW at Kirtland AFB, N. M.

Mishap with a Moral:

Mistaken Identity

Last year an Air Force F-111 on a night refueling mission attempted to join up with what the pilot thought was a KC-135 tanker. The tanker turned out to be a twin engine civilian turboprop and the attempted joinup resulted in a midair collision that claimed the life of the civilian pilot and destroyed both aircraft.

In-flight refueling in MAC is limited to certain Jolly Green and C-5 crews, and the tragic lessons in this accident will provide them with ample food for thought. Nonrefuelers will also find a message in this account.

Final Transmission

As darkness settled across the western skies, the Turbo Commander climbed on its initial leg to a destination in Montana. Flying under visual flight rules into southern Utah, the pilot elected to initiate an IFR clearance for the remainder of his trip. The aircraft leveled off and was cruising VFR at 270 knots near Bryce Canyon, Utah, when the pilot contacted Flight Service and placed his IFR clearance on request. Flight Service responded with an altimeter setting, en route weather and an ATC center frequency for further clearance. The pilot contacted the center.

"Ident, say altitude," acknowledged the controller.

"Okay, squawking fourteen hundred. We're here at seventeen five and I'd like to go to eighteen. Have you got a flight plan from the Flight Service?" questioned the sole occupant of the turboprop.

"Four Zero Mike Papa, I don't see your — what is your position from Bryce Canyon?" replied the controller.

Mike Papa did not reply. His request for the flight plan was his last radio transmission.

Preceding Events

A half hour earlier, a KC-135 tanker had arrived in an air refueling area and established a track northwest of Bryce Canyon. Maintaining 20,000 feet in an altitude block of flight level 180 to 210, the tanker awaited the delayed flight of the two fighters. The tanker crew had prepared their aircraft for the mission and all external lights were on.

Two F-111's, Alpha and Bravo (not their true call signs), were scheduled for the mission, with Bravo leading the two-ship formation during the refueling phase. But maintenance problems delayed Alpha's takeoff, and Bravo took off alone. Approximately ten minutes after Bravo's departure, Alpha, now in commission, launched and took up a course directly to the air refueling intercept point (ARIP).

While Alpha was en route, Bravo was having its own troubles. The crew discovered that their tacan

had malfunctioned and that the flight director displays weren't receiving navigational inputs from their inertial navigation system. Consequently, the pilot of Bravo was unable to accurately determine his aircraft position over the ARIP and did not know if he had overflown it or was laterally offset from the refueling track.

When Alpha arrived in the area, Bravo's pilot radioed a brief account of his degraded navigational status and requested Alpha to assume formation lead responsibilities. Without delay, Alpha took the lead, but neither crew realized that their position was from 15 to 17 miles to the right of the published refueling track. Because of the sudden change of formation lead, the weapon system operator on Alpha accomplished the refueling precontact checklist late. Normally, in-flight procedures would have been completed prior to passing the air refueling intercept point.

While the tanker maintained a steady course of 305 degrees, the weapon system operator in Alpha made a positive radar contact and visually identified lighting on what he assumed to be the tanker. Alpha called "tally ho" and pursued the target. The pilot of Bravo also spotted the beacon at 12 o'clock and he too assumed it was the tanker.

As Alpha closed the gap on the beacon, the weapons system officer informed the pilot that the target's range was two miles. The pilot radioed the tanker and requested that it speed up to 305 knots. Approximately 4,000 feet now separated Alpha from the "target."

After the weapons system officer reported a range of 2,000 feet with a fast closure rate, the Alpha pilot confirmed his altitude of flight level 180 and airspeed decreasing from 320 knots. Then suddenly, he saw a white light and what he thought was a KC-135 engine pod. He pulled back on the stick in an evasive maneuver, but an instant later, the two planes collided.

Aerial "Flares"

Shortly before the collision, the tanker crew had heard the fighter's "tallyho." The tanker's boom operator also called a "visual" on a beacon at approximately three to four o'clock from the tanker's position. Shortly thereafter, the tanker crew observed what they thought were flares. Unknown to them, the "flares" were actually explosions from the midair collision. Then, the tanker crew heard a "Mayday" call radioed on UHF by the fighter crew.

Alpha's crew ejected and parachuted safely in the two-man escape capsule. The turboprop broke up into pieces that spread over a nine-mile area.

Federal investigators analyzed circumstances, procedures, and events leading up to the accident. They concluded that during the joinup and rendezvous, the Bravo crew was unaware that they were 15 to 17 miles to the right of the designated refueling track — and well outside of the protected airspace. The crew on Alpha, the aircraft subsequently lost, failed to spot the error due to preoccupation with the rendezvous. When Alpha assumed the lead position, the flight had already passed the Air Refueling Intercept Point, and the crew had little time to properly assume lead responsibilities, identify the tanker, and configure for the refueling operation.

Investigators believe that the hurried atmosphere, together with the undetected position error, was what led the pilot of Alpha to mistake the turboprop's beacon for that of the tanker's.

The message for MAC crews is clear; whether you're flying a VOR approach or engaging in refueling operations, rushing procedures and making assumptions without proper verification can lead to problems of the most unexpected nature.

— Adapted from
National Transportation Safety Board
Report Number NTSB-AAR-75-12

New ARTCC computers and sophisticated radar and transponder equipment are making coast-to-coast flights easier and safer.

Latest FAA Innovations for Safety, Convenience

If you've flown coast-to-coast lately, you may have noticed that ARTC controllers have nearly quit directing crews to change transponder codes each time their flight crosses into airspace controlled by another center. This absence of radio transmission and code-change instructions doesn't mean that controllers are falling down on the job. It's just that FAA has made flying more convenient.

The new FAA Radar Beacon Code System, designed so that an aircraft can often take off and land without having switched transponder codes, is one of two recent innovations in air traffic control.

The second innovation is a Conflict Alert System. This system, far from being a mere convenience, assists controllers in maintaining minimum in-flight separation standards. It actually predicts where an aircraft will be two minutes in the future.

Although the two new systems are unrelated except in the use of computerized information, the effect of both is to make flying more convenient and safer.

Radar Beacon Code System

In setting up the Radar Beacon Code System, blocks of discrete transponder codes were assigned to the 20 Air Route Traffic Control Centers (ARTCC) responsible for handling aircraft operating under IFR between terminals. Other code blocks have been assigned to airports that have computerized automated radar terminals systems (ARTS III). So, when a flight takes off from one ARTS III terminal and lands in another, chances are its transponder setting will remain the same. Since most military bases are not ARTS III - classified, transponder changes usually are required upon takeoff and when arriving at another military base.

Under the new setup, when a pilot flying under instrument flight rules files his flight plan with the appropriate ATC facility, it is processed by the computer at the facility and assigned a four-digit beacon code. Prior to takeoff, the pilot dials in the transponder code, which may remain the same for the entire flight.

Some air traffic control centers may actually share discrete beacon codes but these facilities are widely separated, geographically, to avoid code conflicts. Never will two aircraft operating within the airspace of the same center be assigned the same discrete code. If a conflict arises, one of the aircraft will be assigned a different code. A computer automatically calls for the code change.

The use of nondiscrete codes for VFR flights is also being affected. Under the new system, transponders of VFR aircraft are allowed to remain set on code 1200 regardless of altitude. Previously, pilots were required to switch codes when operating at 10,000 feet or above. Also, VFR pilots utilizing radar advisory service must reply on separate discrete codes assigned by ATC rather than on code 1200.

One result of this new Radar Beacon Code System is that pilots spend more time looking outside into crowded skies because they aren't continuously changing transponder settings. But the convenience factor is what most pilots first become aware of.

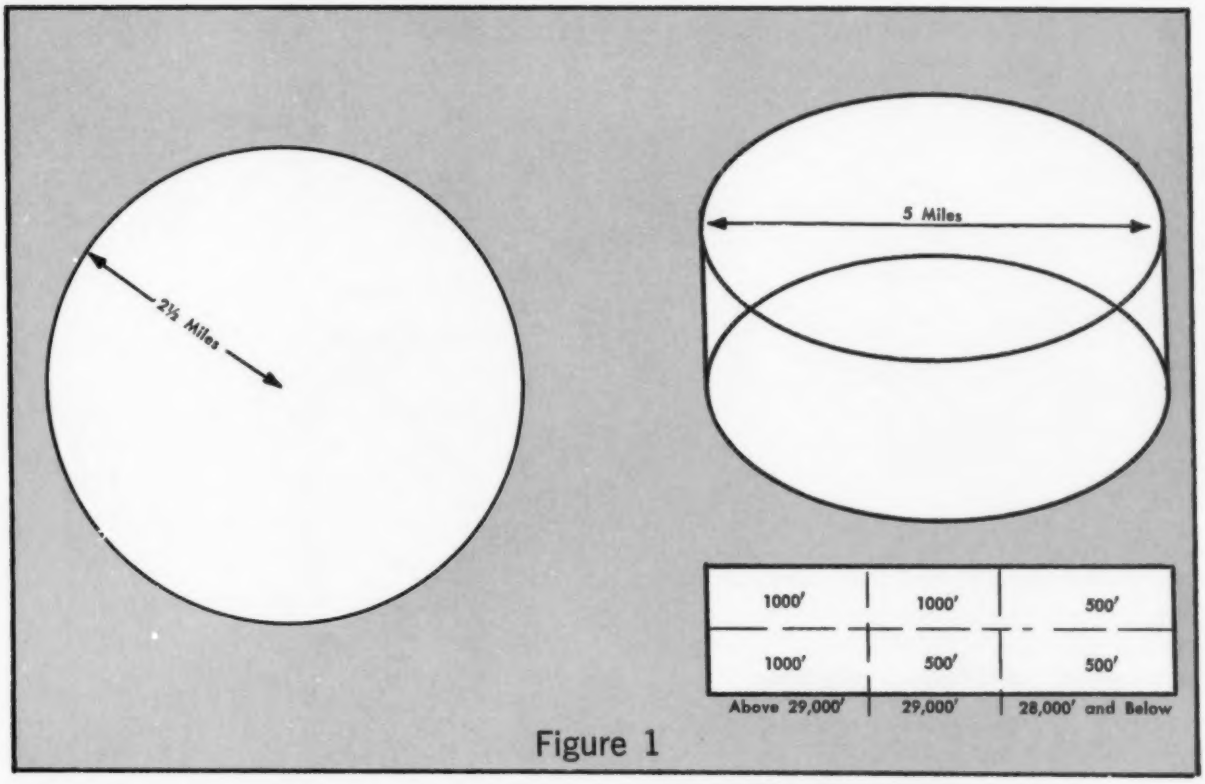


Figure 1

Conflict Alert System

This system is now being used to alert controllers anytime aircraft are projected to violate minimum separation standards in airspace at 18,000 feet or above. It features flashing aircraft identification tags on a radar scope to alert the controller whenever a conflict is about to occur. A clear text message on the scope identifies the aircraft causing the conflict. Conflict predictions are based on computerized altitude and track data and predictions of where an aircraft will be in two minutes.

Here's how it works. Visualize a cylinder of airspace and an aircraft within the center of this airspace (Figure 1). The dimensions of the cylinder are five miles across and 1,000 feet below and above the aircraft at altitudes above 29,000 feet. At 28,000 feet and below, vertical dimensions become 500 feet above and below the aircraft. For an aircraft at 29,000 feet, vertical dimensions are 1,000 feet above and 500 feet below.

Any time two cylinders of airspace are projected to touch within two minutes, an alert flashes on the radar scope. Furthermore, an immediate alert flashes any time a cylinder of airspace is penetrated vertically by approximately 300 feet — such as when in a holding stack or with opposite direction traffic.

The warning system is predicated upon aircraft squawking assigned transponder codes, a fact that points out the importance of having the proper code set in.

Although no plans have been announced for installing such a system in Terminal Areas, some centers are testing it to cover airspace down to 12,500 feet.

Both of these systems are designed with convenience and safety in mind, but, whether you're up for a weekend flight in a private plane or flying a MAC mission, aircrew compliance with ARTC instructions is the key to their effectiveness.

— Adapted from *Flight Deck* and *Flight Safety Facts & Reports*

Vowing to follow the book, the Master Manipulator forgets to read the fine print and is victimized by his aircraft's "strange noises."

C.R. TERROR

Hey, Boss, I didn't know you were back on status," exclaimed Long Suffering Sam, apparently surprised to see C. R. in the base ops flight planning room. "I thought General Fang put you behind a desk, er, sort of permanently — Sir."

"M'boy, you're partially correct," C. R. explained cooly, "but you see, Sammy, after the general had time to simmer down and thoroughly analyze how adroitly I handled that unfortunate icy runway incident, it took little convincing that my absence from the tumbling mirth of sunsplit clouds would adversely impact MAC's Teenee-Weenee Airline business."

"Im just kidding, Sir. I knew you were the AC," smiled Sammy, "but I'm afraid I have some bad tidings. Guess who we're hauling to Andy Air Patch?"

"Ugh, Sammy, judging by the look on your face, it's gotta be ole Fang himself," replied the Aviator with Avoirdupois. "Not even Hitchcock's best celluloid could contrive a more terrified countenance than yours. Start pencil whipping the paperwork, m'boy, so we can get Chafe . . . ah, what's our tail number, Sammy?" asked C. R.

"Sir, you really haven't flown in quite awhile. The old call signs went out the window about three months ago," explained C. R.'s loyal copilot. "We get new call signs every day now — some are real dandies. Today we're Thunk 85. It's a '62 model, tail number 455. Also, there are a couple of things different about these models that you . . ."

"No matter, m'boy. A '62 model swept wing steed will work on

launch pad three-one just as well as a '60, and that new call sign rings of strenuous sorties in the skies of SEA," reflected C. R. nostalgically.

"Sammy, m'boy, before we cock the aircraft for Fang's arrival, I want to impart a few pointers. First, we're going to do everything strictly by the book, no shortcuts — not that I have ever committed any such offense, heh, heh," giggled C. R. "If we find the slightest thing amiss with our aged aerospace vehicle, the wrenchbenders and wire twisters will have to give it another rabies shot. Sammy, give the crystal ball gazers a final weather check before the general arrives. If there's any nympho cu en route to Andy, we're gonna deviate, like via Panama!"

Sammy couldn't believe what he had heard. By the book? Take no chances? Could it be Major MacZaminer disguised as C. R.? Long Suffering Sam made one more weather check.

* * *

"Boss, weather's super. Hot and dusty all the way to the east coast," reported Sam as he slid into the right seat.

"Very well, m'boy. Check in with ground control, have the clearance delivery troops get us a vacant highway in the sky, and let us begin the professional litany of the Before Starting Engines Checklist," commanded the Able Aeronaut.

Sammy enunciated the Sabreliner's Before Starting Engines Checklist to his unusually attentive AC.

". . . Oxygen quantity."

"Checked, m'boy."

"Flight director mode."

"Nav — as it should be."

"Gear emergency T-handle."

"In — all the way in, heh, heh."

"Gear electric reset."

"Er, ah, depressed."

Thunk, wheeeezzz, thunk, throbbed the T-39 as the Fearless Flyer depressed and released the landing gear electric reset button.

"Stop right there, Sammy. Freeze the simulator, m'boy. My many years of aviation expertise and understanding of things mechanical tell me there's a flaw in our flying machine. Lemmee depress the button again."

Thunk, wheeeezzz, thunk.

"See there, Sammy, the gear sequencing system is all screwed up. Quick, call the command post! Alert maintenance! Call the SOF. Forget all that! Get a priority line to the Chief of Maintenance!" barked C. R.

"But, Boss, there's nothing wrong with the gear reset . . ." interjected Sam. But C. R. cut his copilot short.

"Tut, tut, tut, m'boy. We can't take any chances. Get on the horn and tell those wrenchbenders to get out here pronto. It's probably a microswitch out of adjustment," persisted the Rotund One.

Minutes later, a dark blue maintenance van pulled up in front of the Sabreliner. Out sprang a civilian specialist and two military maintenance persons.

"What seems to be the problem, Major," quizzed the specialist, leaning between the pilots' seats.

"My good man with all the wrenches, please observe," replied C. R., directing the specialist's attention to the gear reset button as he pressed again with his pudgy paw.

Thunk, whhheeeezzz, thunk.

"As you can plainly see and hear, m'good man, the landing gear on this swept-wing mini bugsucker is afflicted with a mechanical malady," advised the Able Aviator.

"Hey, man, all '62 models do this — everything's cool," observed the specialist.

"Nonsense, there shouldn't be any noises when that button is depressed. Better get this bird on jacks for some extension and retraction tests," insisted C. R. "Never trust these feather merchants, Sammy m'boy," C. R. whispered to his copilot.

"Hey, Boss, look what's stopping beside the aircraft. It's General Fang's staff car and he and his aide are getting out," cried out the surprised copilot.

"Whhaaaa, yikes, he's a half hour early," moaned C. R.

"Good morning," greeted the stone-faced general. "Well, we meet once again, Major Terror. I trust everything is in good order for an on-time departure and a smooth flight to the east coast."

"Yessir, er, ah, nossir. We, ah, have a maintenance problem with the landing gear and it looks like the aircraft is going out of commission," voiced the cotton-mouthed Sabreliner Skipper.

C.R. TERROR

"Captain deCamp, contact Sabreliner immediately and see if there's another aircraft that can fly us to the coast," the general directed.

"Yessir," acknowledged the aide.

A colonel, standing nearby, interrupted. "Sir, a C-9 is leaving in fifteen minutes for Andy."

"Sounds fine. Let's get on it," commanded the general.

The staff car, with its two-star flag fluttering in the breeze, quickly departed for the air evac flight.

"Whew, that does it, Sammy. Let's give one each T-39 air vehicle back to the local alchemists and maintenance magicians for rectification, m'boy. Then we'll turn in the antihijacking device and the nav kit."

Just as the Dynamic Duo was finishing up at base ops, the phone rang.

"Major Terror, it's for you," said the ops dispatcher.

"Major Terror, this is Colonel Badnews. Report to my office immediately," ordered the local Sabreliner commander.

"Yessir," replied C. R.

"Wonder what's the matter, Boss? I could hear ole Badnews from here," questioned Sam.

"Probably wants to personally recognize my astute skill in detecting a potentially hazardous gear malfunction on the ground before it could turn into big trouble in flight," rationalized the Rotund One.

"I'm not so sure, Boss. I bet maintenance found nothing wrong and passed on the info to Badnews. I tried to tell you earlier that the gear was okay," added Sam.

"Ahem, strange noises on an airplane always indicate the presense of a malfunction, and it's ignorance of such signals that bends birds," preached the Pompous Pilot.

* * *

"Major Terror, I just received a call from the Chief of Maintenance, and what do you think he said?" quipped the irate commander. C. R. grimaced. "He said you cancelled out on a perfectly fine aircraft — not a damn thing wrong with the landing gear system. In fact, the wheezes and thunks you described are normal on 1962 model T-39's. It's obvious that your meager reservoir of aircraft knowledge is about two quarts low. To insure that this doesn't reoccur, you will personally draft a full report. I want it on my desk by sixteen hundred today. That's all," blasted Badnews. C. R. heeled a quick one-eighty and bailed out of the colonel's lair.

"Boss, you don't look too good," declared Sammy as C. R. emerged from the C. O.'s office.

"M'boy, you let me down again. The strains and pressures associated with the command and operation of this aircraft preclude a mere mortal from assimilating every little known fact. That's what copilots are for. A timely reminder from the right seat would have prevented a maldiagnosis of our aerospace machine," sighed the Master Manipulator, as they walked down the hallway toward the main entrance.

Thunk, wheeezzz, thunk!

"Yeeoow!"

"Easy, Boss, it's only the new automatic door opener," chuckled Sammy, taking his boss by the arm.

Global Notes

hercules hustle at howard

The 1300th MAS, Howard AFB, Canal Zone, was kept busy during the month of December with humanitarian missions which became more serious even as they were being accomplished. One C-130 crew, accompanied by a flight surgeon and a medical technician, started out from Howard to pick up a critically ill British marine at Belize Internation Airport, Belize (formerly British Honduras). However, upon landing, it was learned that the two medical officers stationed at Belize had been injured in an automobile accident. The flight surgeon determined the evacuation of one of the officers was essential due to a possible spinal fracture. Thanks to the aircraft commander's successful coordination, the marine and the new evacuee were both loaded on board the C-130 and airlifted to hospital facilities at Howard with a minimum loss of time.

A few days later a mission was launched to Tegucigalpa, Honduras, to provide en route support for a C-130 aircraft that was unable to start an engine. After lending a helping hand, the crew continued with its primary mission, the aeromedical evacuation of a patient from Managua, Nicaragua. Later, during approach to home base, a distress call was picked up from a Howard-based C-123. After landing at Howard and offloading the patient, the C-130 crew obtained permission to relaunch and escort the C-123. Rendezvous was accomplished 100 n.m. from Howard. The C-123 had one engine shut down and had descended to 8,500 feet, which placed it in an area of thunderstorms. Panama Center was unable to provide vectors through the weather. The pilot of the C-130 positioned his aircraft approximately three n.m. behind and below the C-123 using vectors from center and DME readouts. The C-130 then provided the disabled plane with vectors through the weather and accompanied it to a safe recovery at Howard.

A few more days passed and another C-130 crew was notified of an alert launch for a SAR mission. The object of the search was an American shrimp boat, "White Cloud." The crew located the boat, but attempts to communicate with it were unsuccessful. A survival kit was dropped, but positive recovery of the kit was uncertain due to darkness. Later another "White Cloud" mission was launched, and rendezvous was made with a Colombian Navy tanker trying to locate the fishing boat. After the "White Cloud" had been located, vectors were provided to the tanker. Within two hours the Colombian tanker had the fishing boat in sight and the aircraft returned to Howard AFB.

battery explodes

TSgt Harril E. Barber and TSgt Robert H. Baldwin, 55 ARRS, Eglin AFB, Fla., will receive MAC Distinguished Individual Safety Awards for their rapid treatment of serious acid burns suffered by SSgt Howard C. Prevost when a battery case with which he was working suddenly exploded. Sergeant Prevost was almost knocked unconscious as the battery spewed sulphuric acid and part of the battery case over his body, including his face and eyes. Sergeants Barber and Baldwin reacted quickly, partly dragging and partly carrying him to a nearby latrine and immediately flushing him with fresh water. A box of soda was used to neutralize the acid. They continued to treat the victim until an ambulance arrived to transport him to a nearby medical facility. Medical officials credit the rapid response and treatment by Sergeants Barber and Baldwin with having directly contributed to saving Sergeant Prevost's eyesight and minimizing his injuries.

distinguished individuals

In our February issue four members of the 375th CAMS, Scott AFB, Ill., were recognized for having earned awards for their quick actions in preventing possible loss of life or serious injury when a spoiler door he was lubricating closed on a fellow worker's neck. MAC Distinguished Individual Safety Awards have now been approved for three additional members, TSgt Archie Taylor, Sgt Richard I. Ochs, and A1C John R. Rueff, whose names were inadvertently overlooked during the unit's nomination process.

Quick Stoppers

Misty Galaxy
(not the Milky Way)

The C-5 was on a local training mission when the weather in the cargo compartment suddenly went IFR. The first indication of a problem came when the engineer noted that number two hydraulic system quantity and pressure had dropped to zero. Appropriate lights on the pilot's and engineer's panels flashed warnings and, shortly, the engineer got a "smoke detector" light from the center cargo compartment sensor.

The scanner departed the flight deck and found the cargo compartment filled with dense fog. The engineer selected "aux vent" on the air conditioning to clear the haze. The pilot took the jumbo back home without incident.

Here's what had happened: the hydraulic system two-three power transfer unit (PTU) failed, causing a discharge of high density hydraulic fluid mist. Needless to say, a highly explosive mass.

The Yellow Brick Road May Spell Problems

Unless your name is Dorothy and you're traveling in a land of fantasy, beware of the temptation to blindly follow yellow brick roads . . . or taxiways with which you're unfamiliar.

A C-130 pilot fought down such a temptation and was glad he did. He was religiously stalking a follow-me vehicle when he saw something he didn't like. Another C-130, already parked, seemed to be a bit close to his proposed path. He brought the Herk to a halt and deplaned his crew chief. His ground observer confirmed his suspicions — 15 feet of wing overlap! The crew chief then marshalled the bird around the obstruction.

The moral of this oft-told tale is "never assume anything." Cues from follow-me vehicles or yellow taxi lines are not always good ones, particularly at a field that was not designed for your aircraft. Your last line of defense in such a case is usually your own thinking machine.

Raucous Radome

The Starlifter was nearing 13,000 feet in its climb when suddenly a loud noise, accompanied by a vibration, was heard in the radome area. It was so loud that the crew had difficulty communicating over the interphone and radios.

The bird was leveled at 13,000 and slowed to 200 knots. The reduction in airspeed was accompanied by a reduction in noise and vibration. With acceptable communications restored, the crew decided to return to Athens, Greece, their point of departure.

After the aircraft had landed, maintenance persons and crew found the cause of all the noise. The crew LOX service door was missing. The fuselage skin was torn and punctured where the door had assaulted the aircraft before bursting its hinges.

Are You at Six Thousand?

The C-130 was cleared to climb to 6,000 feet but about four minutes after level off, the crew heard approach control ask a commercial flight if it was at 6,000. Simultaneously, the MAC left-seater saw an airliner pass under him in a shallow, descending turn.

The commercial jock advised the controlling agency that he was taking evasive action to prevent a mid-air. Both aircraft were operating under IFR under the control of the same agency.

This one occurred in the northeastern United States. No sermon here — just a reaffirmation that radar contact does not mean that you're home free.

C-130 Nose Job

A C-130 got a nose job recently because of switchology problems. The Herky was taxiing for takeoff when the crew heard loud humming noises that seemed to be emanating from under the flight deck. The aircraft was stopped and an onboard observer scanned the nosewheel well area through the observation area. Nothing unusual was spotted, so the observer deplaned for a look-see. He noticed the radome was on fire! The crash crew responded quickly to the radio call and extinguished the fire, but not before the hurt Herky had received unauthorized plastic surgery to its proboscis.

It seems the Nav had inadvertently positioned the radome anti-icing switch to the AUTO position, and when the engineer ran his prop and engine anti-icing check during the taxi checklist, bleed air to the radome did its dirty deed. The switch is placarded and a caution note in Chapter 4 of the C-130 Dash One warns of this problem, so it's up to you guys to prevent radome overheat/fire. This isn't the first time this has happened, but with your help, it could be the last.

— TAC Attack

QS

Herbivorous Heavy

A military jet from another command, returning to home station after a crew training mission, was being vectored to downwind for a visual approach. At approximately four and a half miles the pilot rolled out on runway heading at an altitude of 900 feet.

At about a mile from touchdown, the aircraft entered a rainshower and the pilot's visibility was reduced to near zero. The pilot wisely elected to go around and requested vectors to an ILS final approach fix. This might have been a routine flight except for one thing. After the plane landed, investigators found tree branches in its engine inlets and damage to flaps and gear doors.

The aircraft's encounter with the trees occurred approximately 5,500 feet short of the runway.

Scintillating Touchdown

Throughout the final approach the KC-135 remained below glide slope and right of course. At about three miles from touchdown the pilot cancelled IFR to proceed visually.

The pilot made final heading corrections just prior to flare, and the left main gear touched down first. A shower of sparks was reported by tower and a scanner reported fluid leaking from number one engine.

Once the aircraft was clear of the runway, the crew shut her down and deplaned to find that sure 'nuf, number one engine had contacted the concrete.

Fly-around Bottle

A "sorehead" is anything but a happy passenger, especially when his cranial malady is a direct result of a bang on the head.

The incident occurred as the pilot configured the C-141 for landing. An oxygen walk-around bottle in the troop compartment toppled out of its mount and struck the passenger in the head. After the plane landed, the injured pax was taken to the Air Force Clinic where his cut was stitched up.

The loadmaster said the oxygen bottle had been used during the flight but was securely stowed prior to descent. Light turbulence which the aircraft had encountered may have caused the bottle to vibrate loose.

Investigators could find no problem with either the mount or bracket.

after deadline . . .

STICKING BUTTON -- Investigation of a recent landing mishap involving a '62 model T-39 revealed that when the pilot depressed the "landing gear downlock electric reset button" during in-flight emergency gear extension, it stuck and failed to pop back out. Consequently, this malfunction prevented hydraulic pressure from reaching the down side of the left gear actuator. When the aircraft touched down, the left main gear folded and the Sabreliner ground-looped to a grinding halt near the edge of the runway.

When in-flight circumstances require depression of the "landing gear down lock electric reset button," T-39 pilots should inspect the button to insure that it pops back out before continuing with emergency gear extension procedures.

TOXIC FUMES -- Pilots of a Navy T-39 may have been disabled by toxic fumes recently. A preliminary investigation into a fatal crash indicates that fumes may have been generated by an electrical fire in the vicinity of the air conditioning unit in the "hell hole."

If strange odors or fumes are detected in any part of your aircraft, assume that such fumes are toxic, and like your checklist says, don masks and get on 100 percent oxygen before beginning smoke and fume elimination procedures.

NEW MAC SAFETY AWARDS REG -- MACR 900-3, Safety Awards Program, is hot off the press and is being distributed to MAC safety offices, including Air Reserve Forces, who have established their requirements. It supersedes chapter 6, MACR 900-1. If you have not received your copy, better check to make sure your requirement has been established.

☆U.S. GOVERNMENT PRINTING OFFICE: 1976-665-669/8

Touch 'n Go

"SHUCKS, IT ALWAYS TAKES ANOTHER QUARTER WHEN YOU GET TO THE GOOD PART."